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SPECIAL REPORT: Fujitsu's Next Stop, World Markets

DATAMATION

FOR MANAGERS OF INFORMATION TECHNOLOGY WORLDWIDE

The New IS Force

Independent Business Unit Managers Are Marching to a New IS Beat

Also in This Issue:

Creating the Open Data Center

The Longer Reach of AppleTalk

Balancing Network Options

The Shock of Going Global

AUG. 1, 1989

VOLUME 35
NUMBER 15

DATAMATION®

FOR MANAGERS OF INFORMATION TECHNOLOGY WORLDWIDE

The New IS Force 18

BY SUSAN KERR The creation of the independent business unit in many corporations has spurred the migration of IS activities to support this business entity. IS pros who have ventured out into the field are finding that life in the business units requires different attitudes toward end users and, often, different technical skills. Some have switched allegiances to such an extent that they grumble about their former colleagues back in central IS, the old "glass house."

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Cover Photography by David Bradley

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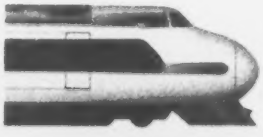

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FUJITSU LTD.

Next Stop, World Markets 28

BY JEFF MOAD The world's number-three information systems company is speeding ahead with plans to expand its presence in world markets. To do so, it is investing heavily in open systems technology and establishing beachheads in the United States and Europe. Will IS executives have a major new alternative to the current crop of vendors?

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BY MARK WALLER Uninterruptible power supplies are not a panacea for all electrical problems and in fact can cause problems themselves. But, in combination with isolation transformers and with careful engineering of the site, UPSs can effectively protect systems from power glitches.

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BY LAWRENCE STEVENS Automated management tools and distributed computing are chipping at the walls around the data center. Yet, even as some positions fade away, DP employees are becoming more—not less—technical.

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BY JEFF MOAD As companies respond to pressures to decentralize IS and place applications closer to end users, management in some companies is coming up with some creative ways to educate technology-oriented IS staffers about the businesses they are supporting.

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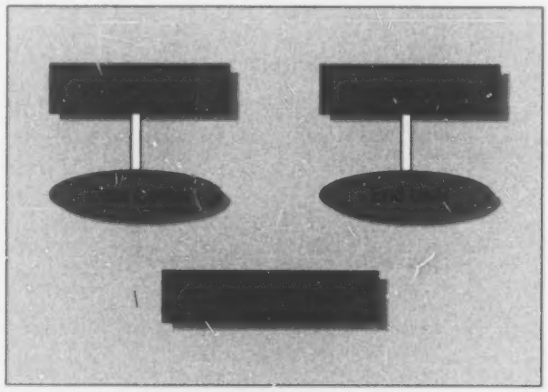
The Correct Perception

Perception is not reality in all cases. The perception that information systems executives and their headquarters staffs are fighting the move toward distributed systems is a myth. Equally fatuous is the notion that workstation-wielding end users don't want or need anything from central IS. In reality, both constituencies—IS execs and their corporate counterparts—understand the benefits and the limitations of managing information on desktop platforms.

Such mutual understanding—the real foundation for corporate computing in the decades ahead—shines through in three separate articles in this issue. Each is written from a different perspective in the corporate-computing environment.

The business unit, where companies fight battles to win and serve customers, is the focus of San Jose bureau manager Susan Kerr's attention in this issue's cover story, "The New IS Force," p. 18. Her reporting goes beyond discussing the advantages of placing responsibility for business-critical applications in the hands of IS professionals located on the front lines of corporations. Most members of this new IS force feel liberated—free to develop and support the systems needed to help their colleagues generate more business for their organizations.



TECHNOLOGY PARTNERSHIPS between headquarters and business units may lead to greater productivity.

The view from headquarters, as seen by senior writer Jeff Moad in "Out of the Glass House," p. 71, is equally liberating. Interviews with the top IS executives from companies as diverse as General Foods USA and Primerica Corp. reveal that organizations are pulling out the stops to educate all of their IS employees—regardless of location—about business fundamentals.

Data centers, too, are growing increasingly aware of their new responsibilities in distributed-computing environments. In "The Open Data Center," p. 55, contributor Lawrence Stevens discovers several IS managers who have invested in the tools and staff needed to handle the complexities created by today's power users.

You should not, however, perceive the expansion of distributed computing to be a mild, orderly event in most user organizations. If anything, the issue has caused a considerable amount of turbulence. At the center of such storms are two questions:

- Are IS executives willing to take charge of building and maintaining the information technology infrastructures their businesses need?
- Are business unit managers ready to assume control of the use of such technology?

If your organization hasn't started answering these questions, it had better begin before competition forces it to do so.

Currency Excess Drives Foreign Success, Right?

Another misperception concerns major Japanese IS suppliers. It's not, in most cases, a swollen currency that's giving Fujitsu Ltd., Hitachi Ltd., NEC and others so much of their new muscle. Their might derives from meaningful, long-term strategies combining technology, customer care and, yes, aggressiveness. Senior writer Moad discovered as much during a week he spent in Tokyo interviewing executives and customers of the world's number three IS supplier, Fujitsu. His findings are the subject of our special report, "Next Stop, World Markets," on p. 28.

Tim Mead

Tim Mead, Editor-in-Chief

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Next Stop, World Markets

The world's number three information systems company is speeding ahead with plans to expand its presence in the United States and Europe. But will its strategies play in Peoria or Paris?

BY JEFF MOAD

From his 20th floor offices above Tokyo's downtown Otemachi district, Fujitsu Ltd. president Takuma Yamamoto can look directly down on the city's central railroad station, where Japan's aptly named bullet train makes its daily stops before pressing on to Kyoto and points beyond.

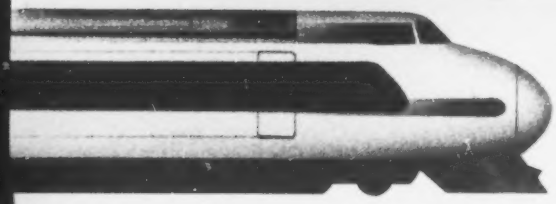
Like the world famous blue-and-white train whooshing along at 200-plus miles per hour, information systems hardware and software vendor Fujitsu—with Yamamoto at the controls—has accelerated to impressive velocities. Ten years ago, Fujitsu surpassed IBM as Japan's top IS vendor. The company hasn't looked back since. Combining impressive hardware technology with aggressive sales, marketing and customer support, Fujitsu has managed to widen its lead in Japan. More important, it has emerged as the world's number three IS vendor—trailing only IBM and Digital—after a fiscal year that saw its global IS revenues climb 15% to $11.95 billion. Fujitsu's corporate revenues were just over $18 billion for the 12-month period ending March 31.

Now there is mounting evidence that Fujitsu is putting together plans to become a force not just on its own turf but also internationally. In the wake of an arbitrated settlement last year with IBM, which removed a legal cloud that had been hanging over the company, Fujitsu tested the tracks outside Japan with renewed vigor. The company has:

- Invested heavily in open systems technology, a key to unlocking Western doors.
- Started direct sales subsidiaries in some countries on a trial basis.
- Established a systems-engineering and support beachhead in the United States.
- Expressed behind-the-scenes interest in acquiring major U.S. software companies.
- Acknowledged, in recent interviews with DATAMATION, that it wants to market Fujitsu-labeled

Fujitsu Rides on Domestic Tracks...

As do Japan's other IS engines.



Fujitsu has emerged as the world's number three IS vendor, trailing only IBM and Digital.

midrange systems and operating systems more aggressively outside Japan.

Such actions raise the possibility that IS executives worldwide will soon have a major new alternative to the current crop of vendors, products and services on which they've been building their enterprises. But it's just that—a possibility—unless Fujitsu clears the obstacles in its way toward becoming a truly global IS force.

What Stands in Fujitsu's Way

Fujitsu is saddled with several different, incompatible proprietary architectures. It hasn't created a complete solution for users wanting a single, consistent distributed development and production environment. It's hemmed in internationally by some of its existing marketing relationships—with Amdahl Corp. in the United States and with Siemens AG in Europe. And its mainframe heritage could prove a hindrance.

In Japan, Fujitsu has built its strength on strong mainframe hardware and on an ability to develop close, long-term relationships with a set of relatively conservative, mainframe-oriented users. In Europe and the United States, Fujitsu will face a much different situation. There the trend is toward distributed applications built around local area networks, a consistent development environment, quick new application turnaround times and integration services that focus as much on matching applications to business requirements as on development methodology and coding.

Nevertheless, Fujitsu is clearly aiming to increase its international presence, which to date has been less than impressive. The company's overseas IS sales (not counting semiconductors or telecommunications) total $2.4 billion—slightly more than 13% of Fujitsu's total corporate revenues of $18 billion.

If the company's internationalization efforts fail, that could have serious implications for Fujitsu's customers—even those in Japan. The biggest impact might be in the area of research and development: Fujitsu needs new sources of revenue growth to feed its insatiable R&D appetite. "I don't know how long we can endure this," says Masaki Ogi, president of Fujitsu Laboratories Inc., referring to the fact that the company's R&D spending is growing faster than sales. The company now is devoting about 13% of its revenues to R&D.

"They're clearly not satisfied with their international business right now. And they seem to be making moves to improve it," says Yuji Ogino, managing director of International Data Corp. Japan Ltd. Analysts in the United States seem to agree. According to Bob Djurdjevic, president of Annex Research in Phoenix, "Fujitsu wants to do a lot more internationally, and they may well need to go beyond their current business relationships to accomplish that. I wouldn't be surprised to see that very soon."

Yamamoto clearly isn't overjoyed with Fujitsu's international IS business today. "I wouldn't say we're comfortable with the growth of our international business, but it's in the range of comfortability," says Yamamoto diplomatically. Over the next few years, he adds, "Fujitsu's activities worldwide will be expanding. . . . There will be joint activities, such as establishing new companies and tying up with corporations abroad."

U.S. Strategy Goes Beyond Amdahl

Fujitsu already has one successful marketing channel in the United States for its largest mainframes, the 100-plus MIPS Facom M780 system. The Japanese company owns 45% of Sunnyvale, Calif.-based Amdahl, which markets its own IBM-compatible version of the M780 as its 5990 family. The 5990 has been Amdahl's most successful mainframe to date, boosting the California company to $1.8 billion in sales last year.

Fujitsu officials are quick to say they have no plans either to buy more of Amdahl or to seek new U.S. marketing deals involving their largest mainframes. Midrange systems are another matter, however. Fujitsu is finally ready to think about bringing its

While U.S. Rivals Travel Worldly Routes

IBM's Asia/Pacific business is the company's fastest growing area.

full product line, which consists largely of proprietary systems, to international markets. Asked recently by DATAMATION if Fujitsu is looking for a partner to help market its midrange systems and systems software in the United States, the company's executive director for information processing systems, Shiochi Ninomiya, said, "I won't deny it."

Recently, Fujitsu took a big step toward enhancing its international position by announcing a new operating system, which is essentially compatible with IBM's MVS/XA. The new Fujitsu operation system, called MSP Extended System Architecture, will not only support IBM languages, such as VS/FORTRAN, but also major IBM subsystems, such as CICS and DB2. Currently, Fujitsu's mainframe operating systems only simulate the functions of IBM's operating systems and subsystems. Fujitsu's announcement followed last year's resolution of IBM's charges that Fujitsu violated its intellectual property rights in designing its earlier operating system software. Fujitsu announced the new operating system only in Japan and Australia for shipment about a year from now. The company says it has no immediate plans to introduce the product in the United States.

AIRLINE CUSTOMER ASHIGAMI: Fujitsu assigned 50 programmers to his expert system application.

Fujitsu isn't the only major Japanese IS vendor plotting escalated international efforts. Late last year, rival Hitachi Ltd. joined with Electronic Data Systems Corp. (EDS) to acquire U.S. mainframe distributor National Advanced Systems Corp. (NAS) from National Semiconductor Corp.

> I'd view it as a positive if Fujitsu entered the market. The more players and the more competition, the better.
>
> **James Marston**
> **American President Cos. Ltd.**

Hitachi's recent acquisition of NAS made Hitachi the first large Japanese IS vendor to take a direct controlling interest in a major U.S. systems subsidiary. Fujitsu officials, however, insist the move by their Japanese rival hasn't had an impact on their company's international IS marketing plans.

In fact, Fujitsu had already started expanding internationally well before the Hitachi-EDS deal was announced. In addition to stepping up its search in the United States for packaged software to run on its mainframe and midrange systems, Fujitsu last year quietly established a systems engineering beachhead in Santa Clara, Calif. Its mission is twofold: to scout out software from independent U.S. software vendors that can be ported to Fujitsu hardware and to provide support services to the U.S. operations of large Japanese customers.

Perhaps as a result of its new U.S.-based systems engineering efforts—called Fujitsu Systems Engineering of America Inc.—Fujitsu has been rumored to be a possible suitor for large U.S. software concerns.

Although no Japanese company has yet acquired a major U.S. software concern, some U.S. observers feel it's only a matter of time. "The Japanese have always been superb at hardware design and manufacturing. But now they are realizing that the software content of systems is becoming a larger part of the whole and that hardware is in danger of becoming a commodity," says Bernard Goldstein of software consultancy Broadview Associates of Fort Lee, N.J.

Fujitsu in Focus

The company is spending more on R&D than ever before.

Worldwide revenues: $18.09 billion
Net income: $530 million
IS revenues: $11.95 billion

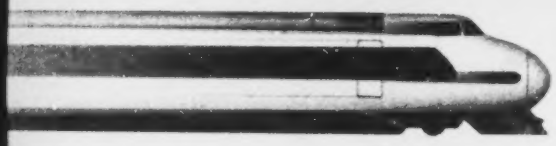
Major product lines:

- Mainframes: Facom M780
- Midrange: M760, M730, K series
- Workstations: 9450 series, Sigma, SPARC- and 68000-based systems
- PCs: OS/2 systems, proprietary MS-DOS systems

Porting packaged software to its Facom hardware would be a prerequisite to any serious direct assault by Fujitsu on U.S. or European markets. But it would also help Fujitsu at home, where a historical preference among users for in-house or custom-developed applications is slowly giving way to an acceptance of packaged applications.

One U.S. software company hoping to cash in on Fujitsu's expanded international-marketing plans is On-Line Software International Inc. of Fort Lee, N.J. With the support of Fujitsu and its Japanese distributors, On-Line is currently in the final stages of porting its Ramis fourth-generation language and U.F.O. computer-aided software engineering tools to the Facom environment. According to On-Line executive vice president Rick Holtmeier, engineers from Fujitsu Systems Engineering in Santa Clara have been unusually helpful to On-Line engineers. He says On-Line is spending close to $1 million to port its products to the Facom environment because, he believes, the move will expand On-Line's market not only in Japan but also in other markets, including the United States. "They haven't said anything to us about it, but, based on what Fujitsu is doing in Santa Clara, we think they're about to make some kind of move into the U.S. market," Holtmeier says.

Fujitsu already has moved ahead in several other foreign markets, increasing its direct-marketing



Fujitsu's mainframe heritage is ill suited to the distributed-processing needs of U.S. users.

presence in several regions. In Spain, Fujitsu recently formed its own direct sales subsidiary similar to the ones it has established in Brazil, Hong Kong and Singapore. And in Australia, the company last fall established an applications center to develop custom solutions for Australian users.

How Programming and Open Systems Fit In

If Fujitsu's approach to the technical aspects of systems engineering and customer support in Japan is any indication, users in Europe and the United States could benefit from an expanded Fujitsu presence.

In Japan, where experienced programmers are in short supply, many large users rely heavily on hardware vendors like Fujitsu for help in developing applications. All Nippon Airways Co. Ltd., for example, recently implemented an expert-systems-based flight-scheduling application executed almost entirely by Fujitsu systems engineers. According to airlines MIS development manager Akihito Ashigami, Fujitsu put 50 programmers on the project. which included data base, graphics and office automation elements, in addition to the expert-scheduling system. In addition, Fujitsu keeps engineers on hand full-time to maintain the application.

That kind of hand-holding support approach could sit well with U.S. users, many of whom are looking to off-load some development responsibilities to outside vendors or systems integrators. "I've been impressed with the little I know about them [Fujitsu]," says James Marston, chief information officer at the shipping company American President Cos. Ltd. in Oakland, Calif. "I'd view it as a positive if they entered the market. The more players and the more competition, the better."

Marston is apparently just the kind of large U.S. user Fujitsu would like to woo. Fujitsu recently contacted him and several other U.S. CIOs with an invitation to come to Japan and learn more about it.

Another area in which Fujitsu is clearly targeting overseas users is open systems. In the past few months, Fujitsu has positioned itself as the open systems leader among Japanese systems vendors. The company was the first Japanese vendor to join the X/Open Co. Ltd. consortium, a group of 19 systems companies at the forefront of the open systems movement. Fujitsu is also a member of the AT&T-affiliated UNIX International open systems effort. And it has marketing and technology-licensing agreements with Amdahl and Sun Microsystems Inc. Fujitsu manufactures Sun's SPARC reduced instruction set computing (RISC) chips and resells Sun workstations. The company has also ported Amdahl's UTS mainframe UNIX operating system to its largest Facom systems.

"We sincerely hope there is a strong standard such as OSI [open systems interconnection]," says Fujitsu president Yamamoto. "But we also have to look for a second-best solution such as X/Open and UNIX International. We are willing to cooperate in their development."

Fujitsu's keen interest in open systems has blossomed despite limited active user interest in open

Fujitsu's Old Foe Goes on the Offensive

While Fujitsu Ltd. attempts to increase its IS business overseas, inside Japan, the company is facing renewed competition from an old rival—IBM.

In recent months, IBM has gone on a market share offensive—trying to make up some of the ground it lost in the mid-1980s to Fujitsu and NEC. Big Blue is offering large users significant price discounts. It is merging its Japanese workstation, the 5550, with its high-end PS/2 workstations. And it is introducing its midrange AS/400 system in Japan. IBM has even begun marketing hardware options that make its 3090 mainframes compatible with Fujitsu's and Hitachi Ltd.'s large systems.

As a result, IBM's computer business in Japan last year increased by more than 14% to about ¥1.2 trillion (about $9.1 million at ¥132=$1). Its share of the installed base of large systems in Japan climbed from 27% to 29%, according to a leading Japanese computer publication, *Nikkei Computer*. Although IBM continues to lag behind both NEC and Fujitsu in the Japanese midrange systems market, the company has solidified its number two position in personal computers behind NEC. IBM, according to *Nikkei*, this year holds nearly 22% of Japan's PC market—up from 12% two years ago.

"IBM has been becoming more aggressive in off-list pricing over the last 18 months, in some cases offering up to 50% off list prices," says Yuji Ogino, managing director for International Data Corp. Japan Ltd. in Tokyo. IBM continues to insist on an exchange rate that values the dollar at up to double the going rate. But, Ogino says, the discounts have helped, as has the growing popularity in Japan of IBM's DB2 relational data base management system and packaged decision support application software.

An IBM spokesman acknowledges the company's exchange rate policy, as well as its recent aggressive discounting practices. "It's very expensive doing business in Japan, and the level of maintenance and support that is expected is very high," he says. Nonetheless, he adds, the company is able to offer volume pricing agreements to large customers.

Whereas that pricing aggressiveness seems to be paying off, IBM's efforts to attract Fujitsu and Hitachi customers with compatibility options so far has not. The IBM spokesman was unable to identify a single Fujitsu customer that has jumped at IBM's Facom-compatibility option, which enables users to run applications built on Fujitsu's mainframe operating system on IBM machines. "So far, the number is very small. It's a gradual thing that will be important only as users think about upgrading," he says.

Meanwhile, Fujitsu executives don't seem too concerned about IBM's compatibility efforts. "It's natural to expect IBM to get into the Fujitsu-compatible business in Japan," says Fujitsu's marketing group general manager Tadashi Sekizawa. "That means that from now on we have to focus on ways to differentiate our products. One such way is to add new features, proprietary features. A second is to provide better total support. IBM has begun offering compatibility, but so far we have been very good at competing with IBM."

Fujitsu has positioned itself as the open systems leader among Japanese IS vendors.

systems or in UNIX for commercial applications. While Japanese users like Yuzuru Abe, general manager of systems and operations planning at the massive Dai-ichi Kangyo Bank Ltd., say that in the long term they plan to implement OSI and open systems, for now they seem closely wedded to proprietary architectures and slow to change.

Dai-ichi Kangyo, the world's largest bank, for example, mixes proprietary Fujitsu and Hitachi hardware and software in its systems architecture. The bank recently completed a new Fujitsu-based suite of applications for transaction processing, which took six years and 40,000 man-months to develop. Abe says it has taken the bank 10 years to migrate most of its programming from assembler to high-level languages like COBOL and PL-1.

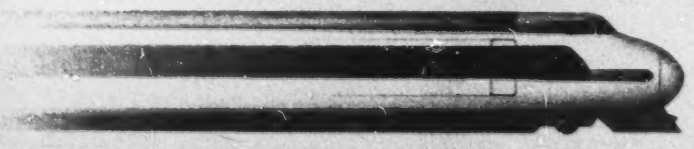
DAI-ICHI KANGYO'S ABE: The world's largest bank just completed a suite of Fujitsu-based transaction-processing applications that took six years.

Given the slow rate of change among Japanese users, Fujitsu officials acknowledge that their open systems efforts are primarily focused on markets outside Japan. "Yes, our interest in UNIX is mainly for international markets today," says information systems executive Ninomiya.

Similarities With IBM

In many respects, Fujitsu's challenges both abroad and at home parallel those of its number-one competitor, IBM. According to Yamamoto; "Today, our business is heavily dependent on the mainframe business. But in the near future we'll have to go down to workstations and personal computers. We have to expand those areas, but it's a very difficult area [in which] to make some progress."

Like IBM, Fujitsu's historical dependence on proprietary mainframe systems has left it with a patchwork of proprietary, incompatible systems and a connectivity strategy that is still largely in the planning stage. Fujitsu sells three mainframe operating systems in Japan, as well as one mainframe line manufactured only for its largest customer, Nippon Telegraph and Telephone Corp. In addition, the company sells an incompatible small-business system architecture and a separate minicomputer architecture. Fujitsu supports four different workstation architectures—including the SPARC design and one based on Japan's Software Industrial Generalization and Maintenance Aids (SIGMA) project. And Fujitsu now has a pair of personal computer architectures, one a proprietary implementation of MS-DOS, the other a recently introduced OS/2 system.



Fujitsu, in fact, was slow off the mark in the Japanese PC market. It trails market leader NEC by a considerable margin and number two IBM by a smaller but significant amount. Fujitsu also seems to have fallen behind in data base technology. Users describe the company's key mainframe data base management software as a nonrelational product, and Fujitsu has yet to come out with a relational data base management system based on Structured Query Language (SQL). However, the company is expected to do so later this year.

Not surprisingly, Fujitsu is attempting to reconcile this diversity of architectures with a common set of languages, interfaces and services much like IBM's System Application Architecture (SAA). Fujitsu calls its approach System Integration Architecture (SIA). Many Japanese users already committed to Fujitsu welcome SIA, although Fujitsu has just begun to define it. Internationally, however, observers say large users would be unlikely to accept a new architectural alternative to SAA and OSI.

A Need for Systems Analysis

Fujitsu executives also acknowledge that the company needs to upgrade its approach to systems integration and applications development support both in Japan and internationally. While Fujitsu is very good at providing users with programmers and programming tools, the company hasn't developed the kind of business-driven systems requirements analysis skills that users increasingly demand.

"Lots of companies in Japan are willing to provide users with programmers relatively inexpensively. Fujitsu is one of them," says Ronald L. Cullum, a partner with Arthur Andersen Consulting in Tokyo. "But nobody's really approaching it from the point of view of solving business problems and implementing solutions—the kind of thing users in the U.S. are demanding." Recently, says Cullum, Japan's Ministry of International Trade and Industry (MITI) criticized Japanese vendors for their implementation-only approach to systems integration.

Japan's largest systems vendor obviously has a lot of work to do before it can establish itself as a major international IS force. Fujitsu officials, however, clearly believe they have something to offer IS users outside Japan. "In Japan, we provided the first support for Japanese language features, and 22 years ago we were the first to provide minicomputers with a COBOL compiler," says Yamamoto. "As a leader in the industry, we plan to continue making such contributions."